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New Psychoactive Substances – Evidence Review

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NEW PSYCHOACTIVE SUBSTANCES – EVIDENCE REVIEW

Fiona Fraser, Safer Communities Analytical Unit, Scottish Government

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The views expressed in this report are those of the researcher and do not necessarily represent those of the Scottish Government or Scottish Ministers.

EXECUTIVE SUMMARY

Introduction

This paper summarises key information on New Psychoactive Substances (NPS) and evidence gaps. Data on Scotland is presented in the context of UK and international evidence.

Definition of NPS

In the UK, the Advisory Council on the Misuse of Drugs (ACMD) defines 'new psychoactive substances' as: "psychoactive drugs which are not prohibited by the United Nations Single Convention on Narcotic Drugs or by the Misuse of Drugs Act 1971, and which people are seeking for intoxicant use". Although not scheduled under the UN drug control conventions, a number of the NPS mentioned in this paper are now controlled in the UK (e.g. mephedrone, BZP, NBOMe and Benzofury).

Main types of NPS available

The number of NPS available is constantly changing and growing which makes it difficult to identify levels and risks of use and for health and enforcement agencies to respond. NPS can contain legal substances, illegal substances, or even a mixture of both. They can be grouped according to their chemical names, or more usefully, by their intended effects on the user (e.g. stimulants). A record number of 81 substances were detected for the first time in Europe in 2013, up from 73 substances in 2012, 49 in 2011, 41 in 2010, and 24 in 2009 (EMCDDA, 2014). However, this increase in numbers should be treated with caution, given that it may in part reflect increasing efforts and capability to detect NPS, and that most of these drugs have not been seen in the UK.

Prevalence of use

Evidence from national surveys shows that use of NPS amongst the general adult population (e.g. those aged 16-59) is relatively low compared with use of other illicit drugs. However, use amongst younger age groups and some sub-sections of the population is higher. This pattern also applies in Scotland, where mephedrone is the most common NPS, used by 1.6% of all 16-24 year olds in the last year, but by only 0.4% of all adults. Cannabis is still the most commonly used illicit drug in Scotland, taken by 5.1% of all adults in the last year (2012/13 Scottish Crime and Justice Survey).

Supply

In Scotland, there were 213 seizures of NPS (mephedrone and ketamine) by police forces in 2012/13[1]. This was around 1% of the overall number of Class B and C drug seizures in Scotland. NPS have been seized in most countries across the world, but there are regional variations. Most NPS originate from Asia, followed by Europe, the Americas, Africa and Oceania. The internet plays an important role in the supply of NPS, with 651 internet shops identified in Europe in 2013 (EMCDDA, 2014).

[1] There were also 215 'other class B' and 125 'other class C' drug seizures in 2012/13. We know that some of these were also NPS, but no breakdown by drug type is currently provided.

Health implications

Evidence is limited, but indications are that NPS can cause a range of physical and psychological symptoms (from kidney failure to psychosis) that are just as serious as for other illicit drugs and can even result in death. In Scotland, over the five years from 2009 (when the first figures became available) to 2013, NPS have been implicated in 132 deaths (less than 5% of the total number of drug related deaths over that period) and in 18 of these an NPS was the *only* drug implicated (less than 1% of the total number of drug related deaths). Drug treatment services in the UK are seeing increased presentations from people using NPS, and reports of problems related to their use.

Responses

Countries are responding to the growth in demand and supply of NPS, and associated harms, in three main ways: **enforcement** (i.e. through legal controls); **prevention** (i.e. trying to stop people taking them in the first place); and **treatment** (for those experiencing problems from taking NPS).

A range of different actions can be taken to place NPS under **legal control.** These include: adding new substances to the 1961 or 1971 UN Conventions; using the European Early Warning System (EWS) to identify NPS and place them under control; and various national measures which involve using consumer safety or medicines legislation, extending and adapting existing laws and processes, or devising new legislation for new substances. In the **UK,** the government has control of substances under the Misuse of Drugs Act 1971. If a drug is causing sufficient concern, the UK Government (following consultation with the Advisory Council on the Misuse of Drugs (ACMD)) can issue a Temporary Class Drugs Order for up to 12 months. The ACMD then has 12 months to investigate and recommend classification if they consider there is sufficient evidence. Although these measures may have worked to some degree in individual countries, they have left loopholes in the global control system which can be exploited by drug manufacturers.

Efforts are also now being made to **reduce the demand** for NPS by educating young people and implementing targeted prevention initiatives. For example, in Scotland information on NPS is provided on the Know the Score website and to school children through the Choices for Life initiative.

To date **treatment** for NPS users who seek formal help is primarily supportive and there is limited information on what constitutes appropriate psychosocial treatment for this group.

Evidence gaps

The following are needed in order to inform future policy responses to NPS (both in Scotland and more widely):

- A full assessment of what is known about the scale and patterns of NPS use.
- Exploration of the nature of the relationship between the new drugs market and the established market in controlled drugs.
- An examination of the short and longer term health impacts of using NPS, and other outcomes.
- A systematic review of the outcomes of the various control systems.

- Analysis of how current interventions to prevent substance misuse and harms may be used for NPS, and consideration of possible new approaches.
- Evidence of what constitutes appropriate psychosocial treatment for NPS users.

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1 INTRODUCTION

1.1 At a national event on New Psychoactive Substances (NPS) on 17 April 2013, the Scottish Government heard from police, health, community and youth organisations about the challenges being posed by these new drugs. A major challenge was the need for better information and evidence on NPS, and as a first step, this paper summarises the key information that is currently available (up to July 2014) and evidence gaps. The paper is structured around the main themes that emerged from the workshop - demand/ prevalence of use, supply, impact/ harms, responses (enforcement, prevention, and treatment); and evidence gaps. In each section, information on what we know about NPS in Scotland is set in the context of information from the rest of the UK and internationally.

1.2 It is important to note that the review does not purport to provide a comprehensive and definitive account of the evidence on NPS, but rather constitutes a collation of the material which could be identified and accessed within a relatively short space of time. It is hoped that the work will provide a foundation upon which new and existing research evidence may be added as it becomes available or is identified in the future.

Definition

1.3 Historically, new psychoactive substances were often referred to as 'designer drugs' and 'new synthetic drugs' although today 'legal highs' and 'new drugs' are the terms used more often. The UK Advisory Council on the Misuse of Drugs (ACMD) defines NPS as: "psychoactive drugs which are not prohibited by the United Nations Single Convention on Narcotic Drugs or by the Misuse of Drugs Act 1971, and which people are seeking for intoxicant use". Although not scheduled under the UN drug control conventions, a number of the NPS mentioned in this paper are now controlled in the UK (e.g. mephedrone, BZP, NBOMe and Benzofury).

2 MAIN TYPES OF NPS AVAILABLE

Key Findings

- NPS can contain legal substances, illegal substances, or even a mixture of both.
- They can be grouped according to their chemical names, or, perhaps more usefully, by their intended effects on the user (e.g. stimulants).
- The number of new drugs available is constantly changing and growing – by 2013, over 300 NPS had been identified in Europe.

2.1 The new drugs market involves an overlap of two broad groups of drugs: those sold directly on the illicit market with those sold as 'legal highs'. Some NPS are added to or sold in place of established illicit drugs, such as ecstasy, and some 'legal highs' cross over into the illicit markets once controls are put in place (EMCDDA, 2013a). Seized substances marketed as 'legal highs' have been found to contain controlled drugs – for e.g. a Home Office Forensic Early Warning System study found that 19% of internet test purchases of 'legal highs' contained a controlled substance (Home Office, 2012).

Number and types of NPS drugs available

2.2 The UNODC report[2] (UNODC 2013a) identifies 6 main groups of drugs that are present in the NPS market: synthetic cannabinoids (e.g. Spice); synthetic cathinones (e.g. mephedrone); ketamine; phenethylamines (e.g. benzofury); piperazines (e.g. BZP); and plant based substances. It also reports on a 7th group of miscellaneous substances that contain recently identified NPS (e.g. tryptamines) that don't fit into any of these groups. Other pharmaceutical medications not used within the UK, for example benzodiazepines such as Phenazepam, have also been included within the broad definition of NPS by the ACMD and the UK National Programme on Substance Abuse Deaths (np-SAD). As well as these chemical groupings, NPS can also be categorised according to their main characteristics, or effects on the user. For instance, DrugWatch has produced 'The Drugs Wheel' (www.thedrugswheel.com) which groups drugs under: stimulants; empathogens; psychedelics; dissociatives; cannabinoids; depressants; and opioids. This also helpfully shows which of these drugs are currently controlled in the UK and which are still legal.

2.3 The emergence of NPS in the drug markets has gained pace over the last decade. A record number of 81 substances were detected for the first time in Europe in 2013, up from 73 substances in 2012, 49 in 2011, 41 in 2010, and 24 in 2009 (EMCDDA, 2014). The 81 NPS detected in 2013 included: 29 new synthetic cannabinoids; 13 new substituted phenethylamines; 7 synthetic cathinones; one new piperazine; one new tryptamine; and 30 miscellaneous 'other' substances that do not fit into the main categories above. In total, over 300 NPS had been identified by member states by mid-2013 (EMCDDA, 2014[3]).

[2] The information in the report was primarily obtained through an electronic questionnaire on NPS which was sent to all Member States and to drug analysis laboratories in July 2012. Responses were received from 80 countries (33 from Europe, 23 from Asia, 12 from the Americas, 10 from Africa, and 2 from Oceania).

[3] This increase in numbers should be treated with caution, given that: they may in part reflect increasing efforts and capability to detect NPS; some drugs may only be seen once and not again; and most of these NPS have not been seen in the UK.

2.4 The market for NPS is rapidly changing. Prior to 2008, most countries reported ketamine, followed by piperazines and non-controlled phenethylamines as NPS. Over the period 2008-2012, most countries identified synthetic cannabinoids (e.g. Spice), followed by synthetic cathinones (e.g. mephedrone) (UNODC, 2013b).

3 PREVALENCE OF USE

Key Findings

- Evidence from national surveys show that use of NPS amongst the general adult population tends to be relatively low compared with use of other illicit drugs.
- However, use amongst younger age groups and some sub-sections of the population – e.g. regular night clubbers – may be higher.
- This pattern also applies in Scotland, where mephedrone was the most common NPS, used by 1.6% of all 16-24 year olds in the last year, but by only 0.4% of the general adult population (16-59).
- Cannabis is still the most commonly used illicit drug in Scotland, taken by 5.1% of all adults in the last year.

Use in the general population

3.1 There are no global estimates of the prevalence of use of NPS in the general population, only limited data from a few countries on specific substances and sub-populations. Several countries have included NPS in their national drug surveys (e.g. Australia, Canada, New Zealand, USA, the UK), but many have limitations including: lack of common definitions and of representative samples; the large and increasing number of substances regarded as NPS; and differences in legislation between countries. Evidence from the few surveys that cover the general population suggest that levels of NPS use in the general population are generally low. In the UK, our most robust estimates of NPS use in the general population come from our national crime surveys.

3.2 In Scotland, the 2012/13 Scottish Crime and Justice Survey reported that 0.5% of all adults had tried any NPS in the last year (Scottish Government, 2014). Mephedrone was the most commonly taken NPS, tried by 0.4% of all respondents in the last year. This compares with 1.7% for cocaine and 1.3% for ecstasy. Cannabis is still the most commonly used illicit drug in Scotland, taken by 5.1% of all adults in the last year.

3.3 In England and Wales the 2013/14 Crime Survey (Home Office, 2014) found that, of adults aged 16-59, 0.6% had taken mephedrone in the last year, 2.3% had taken nitrous oxide in the last year and 0.5% had taken salvia in the last year. This compares with 2.4% for cocaine 1.6% for ecstasy. Cannabis is still the most commonly used illicit drug in England and Wales, taken by 6.6% of adults in the last year.

3.4 In Northern Ireland, the Drug Prevalence Survey (DPS) 2010/11 found last year prevalence of NPS to be 3.5% (NACD, 2012). Again, Cannabis is the most commonly used illicit drug in Northern Ireland, taken by 5.1% of adults in the last year.

Use amongst younger age groups

3.5 Despite use of NPS in the general population being relatively low, surveys have found that use in the younger age groups can be considerably higher than in other areas of the population. This is presumably why many surveys only ask about prevalence of NPS use in younger age groups. For instance, the Eurobarometer Survey (European Commission, 2011) surveyed the experiences and attitudes of young people (aged 15-24) in Europe towards legal and illegal substances in 2002, 2004, 2008 and 2011 (UNODC, 2013a). Evidence from these surveys of young people also reveal regional variations in levels and types of NPS use.

3.6 Use of NPS by young people in 2011 appeared to be highest in the USA, where it was estimated that around 10% of those aged 15-25 had experimented with NPS, compared with around 5% in Europe[4]. Again, in the UK our national crime surveys currently provide the most robust measure of prevalence in younger age groups.

3.7 In Scotland, the 2012/13 Scottish Crime and Justice Survey reported that 2.1% of those aged 16-24 had used any NPS in the last year and last year use of mephedrone (the most commonly used NPS) amongst 16 to 24 year olds was 1.6% (Scottish Government, 2014). The Scottish Schools Adolescent Lifestyle and Substance Use Survey (SALSUS)[5] (Scottish Government, 2011) found that the use of any NPS by 13 and 15 year olds was uncommon (<1%) and 2% of 15 year olds said they had used mephedrone in the last year. Results from 2013 SALSUS will be available in November 2014.

3.8 The England and Wales Crime Survey found that in 2010/11, last year use of mephedrone (the most commonly used NPS at that time) amongst 16 to 24 year olds was 4.4% – the same level as the second most commonly used drug, cocaine powder. However, by 2013/14 this had fallen to 1.9%. Also in 2013/14, 7.6% of 16-24 year olds had taken nitrous oxide in the last year, and 1.8% had taken salvia.

3.9 In Northern Ireland in 2010/11, last year use of mephedrone and 'legal highs' was 2.2% and 2% respectively amongst adults aged 15-34 (NACD, 2012).

[4] In 2011, the survey included over 12,000 randomly selected young people across the 27 EU member states, interviewed by telephone and for the first time it asked about NPS (although small sample sizes – 500 people in most countries, 250 in some, means that its findings should be treated with caution).

[5] Results from the 2013 SALSUS will be available in 2014.

Use among specific groups of the population

3.10 As well as general population surveys, attempts have been made to measure the use of NPS amongst certain sub-groups of the population, such as night clubbers. In such populations the use of NPS can be very high and such studies provide insights into the harms a drug may have and the potential for new drugs to become more widespread (EMCDDA (2013b).

3.11 In late 2013, over 7,000[6] people from the UK responded to the annual Global Drug Survey. The self-nominating sample were typically in their in 20s and 30s, well-educated, and about 50% went clubbing at least 4 times a year. Some key findings are:

- Synthetic cannabinoids, remained the most commonly used new psychoactive drug (last year use) across the sample.
- Among regular clubbers in the UK as a whole, mephedrone use in the last year fell from 13.8% in 2012, to 12.5% in 2013 (in Scotland, methadone didn't make it into the list of top 20 drugs, based on 631 responses).
- Ketamine use in the last year also fell, from 31.5% in 2012 to 19.8% in 2013 (14.7% in Scotland, based on 631 responses).
- In 2013, nitrous oxide was used by 20.4% UK respondents (10% in Scotland, based on 631 responses) in the last 12 months, compared with 27% in 2012.
- In 2013, 10.9% of all UK survey respondents had taken a mystery white powder in the last year (9.3% in Scotland, based on 631 responses) with almost 80% stating that they were already intoxicated before taking it. (Winstock, A., 2014)

3.12 The latest in a series of surveys in 'gay friendly' nightclubs in South-East London (Wood, Hunter, Measham and Darghan, 2012) collected data on use of a wide range of NPS via a questionnaire survey. In July 2011, customers were asked about life-time use, last month use and/or use on the night of the survey/planned use later that night of NPS, cocaine and MDMA/ecstasy. A total of 313 individuals were surveyed over 4 nights; 206 (65.8%) had previously used a 'legal high'. Mephedrone had the highest prevalence of last month use (53.2%) and use on the night of the survey (41.0%). This was greater than both cocaine (44.6% and 16.7%, respectively) and MDMA/ecstasy (26.9% and 5.8%). There was limited 'on the night' use of the non-mephedrone 'legal highs': methoxetamine (1.6%) and 1-benzylpiperazine (0.6%), Spice/K2 (0.6%) and pipradrols (0.6%).The study concluded that although a significant proportion of individuals reported use of NPS, only mephedrone had become an established part of the recreational drug scene

[6] The self-selecting nature of the sample, and small numbers in Scotland, mean that results should be treated with caution.

Use amongst those presenting for specialist drug treatment

3.13 Data from drug treatment services can also provide an indication of levels of use of certain substances and the extent to which they are causing problems for people using them. So far, treatment data on NPS is almost non-existent, but some countries have started to collect data. For instance, in England and Wales, the National Treatment Agency (NTA) has started to collect treatment data on ketamine, mephedrone, methamphetamine and GHB. The USA also reports on the number of visits to emergency departments that specifically involved synthetic cannabinoids (11,406 in 2010) (UNODC, 2013a).

3.14 In Scotland, among individuals attending drug treatment services, presentations by people using mephedrone (only been captured by treatment statistics in the last 2 years) are small in number. In 2011/12, 1.4% (111 individuals) of those reporting illicit drug use in the past month, reported using it at initial assessment with 35 of these reporting it as their main drug. This is down from 2010/11 where 1.6% (133 individuals) reported using Mephedrone, with 69 of these reporting it as their main drug (ISD, 2013).

3.15 Presentations at drug treatment services in England by people using mephedrone, methamphetamine, ketamine, and GHB have increased in recent years (Public Health England, 2013b). The National Treatment Agency (NTA) reports that, while overall drug use has fallen, the number of people needing treatment for club drugs has risen. Club drug users now make up 2% of over 18s and 10% of under 18s in treatment[7]. As many as 1 million people may use club drugs. The NTA warns that the delay between people using a club drug for the first time and developing a dependency could mean that treatment figures continue to rise (National Treatment Agency, 2012).

3.16 Stakeholders in Wales have also reported a rise in referrals related to mephedrone and an increase in its use in conjunction with other substances (Welsh Government, 2013). In Wales during 2010/11, 88 people accessed treatment for mephedrone use with an average age of 21 years (Public Health England, 2013a).

[7] Although note that these are people presenting for treatment **who have used** club drugs, not people who have reported them as their **primary drug of use**.

4 SUPPLY

Key Findings

- In Scotland, there were 213 seizures of NPS (mephedrone and ketamine) by police forces in 2012/13. This was around 1% of the overall number of Class B and C drug seizures in Scotland.
- NPS have been seized in most countries across the world, but there are regional variations in the types of drugs seized.
- Most NPS originate from Asia (especially China and India), followed by Europe, the Americas, Africa and Oceania.
- The internet plays an important role in the supply of NPS, with 651 internet shops identified in Europe at the last count (EMCDDA, 2014).

Geographical spread

4.1 In Scotland, there were 213 seizures of NPS (mephedrone and ketamine) by police forces in 2012/13[8]. This was around 1% of the overall number of Class B and C drug seizures in Scotland (Scottish Government, 2014).

4.2 NPS is becoming a global phenomenon. By 2013, NPS had emerged in every region of the world – reported by a total of 94 countries worldwide (UNODC, 2014a). Of those reported to UNODC between 2008 and 2013, 28% were synthetic cannabinoids, 25% synthetic cathinones, and 17% phenethylamines. Seizures of synthetic cannabinoids have spread over recent years: from three countries in 2009 (Finland, France and Germany) to 16 by 2011. For synthetic cathinones, (mephedrone being the most widely seized) only 2 countries (Finland, Netherlands) reported seizures of over 1kg in 2009, rising to 14 in 2011. Ketamine seizures were already widespread in 2009 (16 countries) and have remained so, with the biggest seizures being in Asia followed by Canada. Phenethylamines seizures are most common in Europe - seized in 9 different European countries, as well as New Zealand, from 2009-2012. Piperazines emerged in almost all regions before 2008 - seizures over the last few years have been fairly constant, and mostly in Europe. Plant-based substances (mainly Khat, kratom and salvia) have been seized in most regions and by most countries. The most significant seizures have been reported by Italy for the last four years, followed by New Zealand. Overall, trends for the 7 NPS groups fluctuate - whilst seizures of ketamine, phenethylamines and piperazines have been fairly stable in recent years, experts predict rising trends for synthetic cannabinoids, synthetic cathinones and plant-based substances (UNODC, 2013a).

Origins of NPS and supply routes

4.3 The primary region from where NPS originate is Asia (especially China and India), followed by Europe (including Czech Republic, Hungary, Netherlands, Portugal, Spain, Ukraine, UK), the Americas, Africa and Oceania (UNODC,

[8] There were also 215 'other class B' and 125 'other class C' drug seizures in 2011/12. We know that some of these were also NPS, but no breakdown by drug type is currently provided.

2013a). The most common mode of trafficking is thought to be by air, followed by mail. The internet was named as a major source of NPS from all regions, having the following advantages for suppliers: access to a vast number of potential users; no need for up-front investment; anonymity; potential to bypass the laws of different countries; and enabling NPS to stay 'under the radar' for longer. It also serves as a source of information e.g. by drugs users to find out about new products, experiences and suppliers through forums, chat rooms and blogs; and by health and law enforcement authorities to expand their knowledge on the subject, e.g. manufacturing processes.

4.4 The most recent EMCDDA snapshot of internet activity on NPS (EMCDDA, 2014) found that the number of online shops offering NPS for sale in the EU has fallen slightly, but is still high, with 651 shops identified in January 2013 (compared with 693, 314 and 170 in January 2012, 2011, 2010). Three natural products – kratom, salvia and magic mushrooms – are the most common 'legal highs' sold online in Europe, followed by a variety of synthetic drugs, mainly cathinones (EMCDDA, 2012).

4.5 The most recent Global Drugs Survey (Winstock, 2014) found that over half 58.2% of UK respondents had heard of the online drugs marketplace Silk Road, and 43.8% of these reported having accessed the site. Of those that had heard of Silk Road, 11.4% had taken drugs they'd bought themselves via the site and 14.6% said they had consumed drugs purchased on their behalf. The most common drug UK respondents purchased on Silk Road was cannabis (including synthetic forms), followed by MDMA. LSD, Ketamine and 2C-B were also popular choices (Winstock, 2014).

5 IMPACTS

Key Findings

- Evidence is limited, but indications are that the health implications of NPS can be just as serious as for other illicit drugs including a range of physical and psychological symptoms (from kidney failure to psychosis).
- NPS use can result in death. In Scotland, NPS were implicated in 132 deaths between 2009-2013 (although in only 18 of these was an NPS the *only* drug implicated).
- Drug treatment services in the UK are seeing increased presentations from people using NPS, and in reports of problems related to their use.
- Other impacts associated with NPS are an increase in acquisitive crime and the increased involvement of organised crime.

Health implications

5.1 Research on the health implications of most NPS is very limited, but what evidence there is suggests that the adverse effects can be just as serious as for controlled drugs. The recent UNODC report (2013a) gathers together the limited available evidence to list the main adverse effects associated with

each main NPS groupings. These range from a variety of **physical symptoms** - e.g. cardiovascular problems, hyperthermia (over heating), kidney failure, fluid on the lungs, seizures - to **psychological disorders**, including anxiety, agitation, memory loss, depression and psychosis. Health impacts will also depend upon whether other drugs and/or alcohol were used at the same time as NPS, and the method of use, for e.g. swallowing, snorting, injecting, etc. Deaths have been associated with drugs in each of the main NPS groups, with the exception of plant based substances, which to date have not been *directly* linked to any fatalities (UNODC, 2013a)[9].

5.2 There is currently no evidence of an increase in presentations at drug treatment services associated with NPS use in Scotland. However, deaths where NPS were found to be *present* in the body have increased over the period, from 4 in 2009, to 113 in 2013. Deaths where it was reported that one (or more) NPS was *implicated* in the death were lower, but again have increased, from 3 in 2009 to 60 in 2013 (totalling 132 over 2009-2013, less than 5% of all drug related deaths). In 2013, 5 out of 60 deaths occurred where NPS were identified as being the *only* substances implicated (a total of 18 over 2009-2013, less than 1% of all drug related deaths).

5.3 In 39 cases, the only NPS present were benzodiazepines (usually phenazepam); in 19 cases, other types of NPS were present (e.g. AMT, BZP, PMA or PMMA); there were two deaths for which both benzodiazepine NPSs and other types of NPS were present (NRS, 2014).

5.4 2,000 people in treatment in England during 2011/12 cited problems related to mephedrone use, over half of whom were under the age of 18. In England and Wales, from 2009 to 2012, NPS were implicated in 129 deaths (although in only 64 of these was an NPS the *only* drug mentioned). In 2012, there were 52 deaths related to NPS, a sharp increase from 29 deaths in 2011. This follows a period of stability (23 in 2010, 25 in 2009) after a large rise from nine in 2007 to 25 in 2008. (ONS, 2013).

Other impacts

5.5 There are indications of other adverse impacts emerging in relation to the use and supply of NPS. For example, the Welsh Government has reported that in parts of Wales the increased use of mephedrone may be causing an increase in some forms of acquisitive crime – particularly house burglaries. (Welsh Government, 2013).

5.6 Recent reports have also noted the potential for organised criminals to become more active in the 'legal high' market (EMCDDA, 2013a). Reports indicate the involvement of organised crime in both the targeting and marketing of NPS, although the extent of this is unclear (EMCDDA, 2012).

[9] NB, as the situation is changing so rapidly, this may not now be the case.

6 RESPONSES

Key Findings

- Countries are responding to the growth in demand and supply of NPS in three main ways: enforcement; prevention; and treatment.
- A range of different actions can be taken to place NPS under **legal control.** These include: adding new substances to the 1961 or 1971 UN Conventions; using the European Early Warning System (EWS) to identify NPS and place them under control; and various national measures which involve using consumer safety or medicines legislation, extending and adapting existing laws and processes, or devising new legislation for new substances.
- Although these measures may have worked to some degree in individual countries, they leave loopholes in the global control system which can be exploited by drug dealers.
- Efforts are also now being made to **reduce the demand** for NPS by educating young people and implementing targeted prevention initiatives. For example, in Scotland information on NPS is provided on the Know the Score website and to school children through the Choices for Life initiative.
- To date **treatment** for NPS users who seek formal help is primarily supportive and there is limited information on what constitutes appropriate psychosocial treatment for this group.

6.1 Countries are responding to the growth in demand and supply of NPS, and associated harms, in three main ways: enforcement (i.e. through legal controls); prevention (i.e. trying to stop people taking them in the first place); and treatment (for those experiencing problems from taking NPS). A brief summary of these types of response is given below.

Enforcement

6.2 NPS fall outside the global drug control system, but some governments have adopted either regional or national responses to the issue to protect public health.

International drug control system

6.3 A notification can be made to the UN Secretary General to add a new substance to any of the schedules of the 1961 or 1971 Conventions. An assessment is then made by the World Health Organisation (WHO) which may result in the Commission on Narcotic Drugs deciding to add, transfer or remove the substance from any of the schedules. This has not happened for any NPS yet, but the WHO are looking at a number of substances for risk assessment to take to the Commission on Narcotic Drugs (CND) in March 2015 (Hallam et al, 2014).

Regional responses

6.4 So far, the only regional response to the emergence of NPS is the European Early Warning System (EWS) of the EU. Established in 1997, and extended in 2005 (Council Decision 2005/387/JHA[10]), the EWS enables the rapid exchange of information on NPS, the assessment of risk and the application of existing control measures to NPS. Each Member State shares information on the manufacture of, trafficking in, use of, and of preparations containing NPS through its Europol National Unit and its representative in the Reitox Network. This information is then shared with Member States, the EC and the European Agency for the Evaluation of Medicinal Products (EMEA). A report is prepared and submitted to the Council of the EU and if necessary, a risk assessment carried out by the EMCDDA. Within 6 weeks of the EC receiving the risk assessment report, the EC must present an initiative to the EU to place the substance under control, or if the EC doesn't find that necessary, then one or more of the EU member states can present an initiative. Then, if the EU decides to place control measures on the new substance, it should do so no later than one year from the date of the decision. By mid-2014, seventeen risk-assessments had been completed, as follows: 25I-NBOMe, AH-7921, MDPV, Methoxetamine, MBDB, 4-MTA, GHB, Ketamine, PMMA, 2C-I, 2C-T-2, 2C-T-7, TMA-2, BZP, Mephedrone, 4-methylamphetamine (4-MA) and 5-(2-aminopropyl)indole (5-IT). Of these, 11 have so far been placed under EU control.

National responses

6.5 Outside of Europe, several countries have taken action to control NPS at the local level, including Japan, New Zealand, Republic of Korea and the USA.

6.6 In **Japan,** at the Tokyo level in 2005, then at the national level in 2007, new legislative powers were granted to allow control over NPS, prohibiting their advertising, supply and production (with penalties of up to 5 years in prison, or fines of up to 5 million Japanese Yen). Possession for personal use does not constitute an offence. As at November 2012, 90 NPS were controlled under the 2007 law.

6.7 In **New Zealand**, the 2005 Misuse of Drugs Amendment Act created a new schedule to control the manufacture and sale of new 'restricted substances' for which there was not yet enough evidence of potential harm to prohibit them completely. BZP was placed on the schedule, but in 2008, on the basis of new evidence, it was placed in Schedule 3 (Controlled Drugs). In New Zealand a new Act came into force on 18 July 2013 which places the onus onto manufacturers to prove that their products pose a low risk of harm, prior to receiving approval which allows the products to be legally manufactured and sold (Wilkins et al, 2013). While the regulatory system was being developed, a number of interim retail and product licences had been granted for untested NPS. However, in May 2014, the NZ Government amended the

[10] Following a review of the system in 2011, the European Commission is working on a new instrument to replace Council Decision 2005/387/JHA

Act to remove all interim approved psychoactive products from the market until further testing confirms they present a low risk of harm to users. A critical assessment of the new regime by Wilkins (2014) concluded that the clinical trials required to test NPS would need to address the characteristics of recreational drug use including binge use, polydrug use, use by vulnerable populations and high risk modes of administration.

6.8 In the **Republic of Korea,** drugs are controlled under the 'Act on the Control of Narcotics'. Several NPS have been controlled under the Act since the mid 2000s, and it was strengthened further in 2011 by the addition of a new 'temporary scheduling system' which allows the Korean Food and Drug Administration to temporarily schedule NPS for a year (UNODC, 2013a).

6.9 In the **USA**, the Controlled Substances Act (CSA) provides regulations for the manufacture, importation, possession, use and distribution of certain substances. Temporary scheduling of NPS to avoid imminent hazard to public safety is also possible under the CSA. As well as the CSA, the USA has the 'Federal Analogue Act' which was set up to control substances not specifically listed in the CSA. An 'analogue' drug is defined as a substance which is intended for human consumption and is structurally or pharmacologically substantially similar to, or is represented as being similar to, a Schedule I or Schedule II substance and is not an approved medication in the United States. Although other countries have adopted similar systems, it is acknowledged that the analogue system is not perfect, owing to (a) difficulties defining analogue drugs and (b) what to do with plant based substances that don't meet condition (i) above (UNODC, 2013a).

Other regulatory frameworks

6.10 Several countries have introduced generic or analogue systems to control groups of similar substances to those individually listed, without the need to resort to legislative reform (e.g. UK, Hungary, Luxembourg, Italy, Ireland, Norway, USA). Many governments have also used 'emergency scheduling' to introduce temporary bans on NPS whilst the legislative process is being completed (e.g the UK, Denmark, Germany, Netherlands, Australia, USA). Finally, other regulatory frameworks, such as medicine legislation and consumer safety regulations have been used, primarily to control the sale of NPS (UNODC, 2013a).

6.11 In the **UK,** the government has control of substances under the Misuse of Drugs Act 1971. If a drug is causing sufficient concern, the UK Government (following consultation with the Advisory Council on the Misuse of Drugs (ACMD) can issue a Temporary Class Drugs Order for up to 12 months. This bans the import and supply of a substance but does not make possession a criminal offence. The ACMD then has 12 months to investigate and recommend classification if they consider there is sufficient evidence. In 2013, new categories of synthetic cannabinoids, methoxetamine and other compounds related to ketamine and phencyclidine were all made Class B drugs. 'NBOMe' and 'Benzofury' became subject to a Temporary Class Drug Order (TCDO) in June 2013 for a period of up to 12 months (Public Health

England, 2013c). As of 10 June 2014, they became fully controlled as Class A and Class B drugs respectively (Home Office, 2014).

6.12 The UNODC's review of approaches recommended a global Early Warning System in order to inform Member States about the emergence of NPS on the market. This is now in place, entitled the 'Early Warning Advisory' and provides provides: a selected bibliography on NPS aimed to inform Member States, the scientific community and other users on recent available sources on methods for the analysis and identification of NPS; selected articles on the toxicology/pharmacology of NPS, use and treatment; as well as identified legislative responses to counteract the challenge of NPS (UNODC, 2014b). Alternative approaches to scheduling an ever larger number of substances have had some success in lowering NPS prevalence rates. However, the potential for supply and demand to simply shift to new substances must be kept in mind. In the long run, some form of common approach to NPS at the international level would be desirable. Although various approaches may have worked to some degree in individual countries, there are now multiple separate control regimes, leaving loopholes in the control system at the global level which drug manufacturers can exploit (UNODC, 2013b).

Prevention

6.13 To date, measures to reduce the demand for, and supply of, NPS have largely focussed on control measures, with countries using a mixture of market regulations, existing drug control legislation and new laws (see above). In addition, providing warnings on the adverse health effects of NPS is one of the activities of the Early Warning System that provides added value to the Member States. In 2012, the EMCDDA issued health alerts for seven NPS and one 'legal high' product (see report for more details) (EMCDDA, 2013b).

6.14 Interest is now growing in addressing the wider issues surrounding NPS, especially the need to understand the potential health and social impact of these drugs and to identify appropriate demand reduction strategies. A key recommendation from the ACMD report on NPS (2011) was that strategies are implemented to reduce the demand for NPS by including NPS in substance misuse education in schools and developing targeted prevention initiatives (ACMD, 2011). Among new approaches being studied are innovative internet-based prevention programmes and the delivery of targeted school based prevention messages (EMCDDA, 2012).

6.15 In the UK, 'legal high' facts, emergency help and drug treatment information are provided by 'talk to Frank''. In Ireland prevention and harm-reduction information on new drugs has been in circulation since 2010. In Poland, 3 prevention campaigns were launched in 2008: a web-based information campaign; meeting between parents and schools; and a universal prevention programme targeting the school population aged 15-18. The Recreational Drugs European Network Project (ReDNet) was a multi-site project funded by the EU's Health Programme to improve the level of information available to young people and professionals about the health risks associated with the use

of NPS. An evaluation of the project concluded that web-monitoring activities are essential for mapping the spread of NPS and that technological tools can be used successfully in specific prevention programmes. The involvement of multi-disciplinary international partnerships was, and continues to be, fundamental for responding to the challenges posed by NPS (Corazza et al, 2013).

6.16 In Scotland work has been done to update the prevention messages on NPS, including updating the information available on the Know the Score website, and the development of an information resource, by Police Scotland, on NPS for high school children through the Choices for Life initiative.

6.17 In recognition of the growing problem in Wales, the Advisory Panel on Substance Misuse (APoSM) established a Psychoactive Substances Sub Group, which consisted of a range of stakeholders, to advise how to respond to this issue. The Sub Group recommended a number of preventative and harm reduction approaches which has resulted in the following:

- Working closely with partners to develop a range of education and prevention materials in addition to carrying out a national campaign in conjunction with the national helpline DAN 24/7, Real Radio and the Welsh Rugby Union.
- Developing a warning system whereby any alerts received from across the UK are distributed via the Chief Medical Officer. The purpose of these alerts is to circulate appropriate information to relevant clinical services, and to ask if any services – including Emergency Departments and ambulance teams - are aware of related cases or additional intelligence (Welsh government, 2013).

Treatment

6.18 A key recommendation from the ACMD report on NPS 2011 was for treatment to be provided for those with acute problems (eg within A&E) and dependency (ACMD, 2011). However, to date treatment for NPS users who seek formal help is primarily supportive and there is limited information on what constitutes appropriate psychosocial treatment for this group. In the UK, a multidisciplinary specialist clinic for users of club drugs has been piloted, offering a range of responses including: brief interventions; pharmacological therapies; and planned care support, demonstrating good retention and outcomes (EMCDDA, 2012). The National Treatment Agency states that, with new substances emerging all the time, treatment services must remain vigilant and adaptable (National Treatment Agency, 2012).

7 EVIDENCE GAPS

Key Findings

The following are needed in order to inform future policy responses to NPS (both in Scotland and more widely):

- A full assessment of what is known about the scale and patterns of NPS use.
- Exploration of the nature of the relationship between the new drugs market and the established market in controlled drugs.
- An examination of the short and longer term health impacts of using NPS, and other outcomes.
- A systematic review of the outcomes of the various control systems.
- Analysis of how current interventions to prevent substance misuse and harms may be used for NPS, and consideration of possible new approaches.
- Evidence of what constitutes appropriate psychosocial treatment for NPS users.

7.1 Despite recent concerns about the growth in the number and use of NPS, there remain significant gaps in our knowledge about these drugs that need to be addressed to inform future policy responses. The need for further research into NPS was highlighted in the 2011 report of the Advisory Committee on the Misuse of Drugs, and reflected in the Action Plan of the UK Government's 2012 Annual Review of the Drug Strategy. In terms of more specific information gaps/ research needs, the following are identified in the literature:

Prevalence of use

7.2 There are large gaps with regard to prevalence data which need to be addressed to improve the basis for decision making (UNODC, 2013b). An assessment is needed of what is known about the patterns of use of NPS in the UK, including the scale and types of use, demographic patterns of use, predictors of use, motivations and pathways to use, use with other substances, settings of use, concurrent health-related and other behaviours, and outcomes of use, particularly of acute harm or toxicity, and dependence. It is important, where possible, that self-reported use should be confirmed with objective measures (e.g. wastewater analysis (Archer et al, 2012) and data from Accident and Emergency records/ poison information services , with content of NPS confirmed with analytical data (NIHR, 2013).

Supply

7.3 There is a need to analyse and respond to the interplay between the new drugs market and the established market in controlled drugs (EMCDDA, 2013a).

Health and other implications

7.4 Research on the health implications of most NPS is very limited. The ACMD (2011) recommended that resources are provided for research on the chemistry, pharmacology, acute harm (toxicity) and social harms of NPS. There are no comprehensive scientific studies on their toxicity and most studies are based on work in animals, fatal poisonings in humans, or observations in intoxicated patients. Toxicity, abuse liability and risks associated with long term use in particular remain unknown. Further research is needed on the short and long term health risks and addiction potential of these substances (UNODC, 2013a).

7.5 Regular data and information are needed from a range of sources (including GPs, drug services, the ambulance service, Emergency Departments, in-patient wards, NRS death records) to understand the characteristics of those using and suffering adverse health consequences, as well as trends in NPS used and how they are used (Corkery, J., 2013). However, there is an issue with data not being routinely collected by these sources, or in a standardised way. Often these problems are caused by a lack of local resources to collect the data, the absence of protocols, legal/ ethical issues about sharing data between agencies, and insufficient resources for those investigating NPS characteristics – neurobiologists, pharmacologists, toxicologists, etc; and those monitoring adverse health consequences (Corkery, J. 2013).

Regulation

7.6 A systematic review of the outcome of various systems should be made with a view to improving the control system at the international level (UNODC, 2013b). The Home Office is currently leading a review of the UK's legislative response to maximise its impact and improve the operational response to the NPS market. This will draw on expertise from law enforcement, local authorities, academia, media and social science. The review will be informed by international approaches as well as other evidence, and is due to report in 2014.

Prevention and Treatment

7.7 Analysis is required of how current interventions to prevent substance misuse may be used for NPS, and consideration of possible new approaches (NIHR, 2013).There is also limited information on what constitutes appropriate psychosocial treatment for this group. (EMCDDA, 2012). There is also a need to better understand how to deal with users who become unwell in recreational settings and when to call an ambulance (EMCDDA, 2012). The NIHR (2013) states that there is a need to bring together current knowledge, possibly supplemented with further research, to build understanding of different target populations for interventions. Possible interventions, and approaches to preventing uptake and reducing use and harm of novel psychoactive substances should be considered.

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